

Where do things come from?



Cotton



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adapted from the text written
by Professor Dr. Joseph Philippe
illustrated by Louis Joos

Chambers



Cotton



Long ago people wore animal skins as clothes. Later they started to grow flax from which they made linen. They also spun sheep's wool to make cloth.

It was not until the Middle Ages that people in Europe first began to use *cotton* for making clothes. Since then cotton has become very important.

Cotton comes from a plant which only grows in warm countries. Although people in Europe didn't use cotton until the Middle Ages, people in other countries had known about it for centuries.



The long piece of material which an Indian uses for his turban is made of cotton.



Cotton is so old that no one knows when or where the first plant was grown.

The first cotton materials were brought to Europe from Arabia and Egypt. Our word *cotton* comes from the Arabic word *qutun*.



Cotton was used in ancient Egypt. The Egyptian priests wore cotton robes.

In India cotton has been grown and used for centuries. Cotton cloth made in 3000 BC was discovered in the ruins of the Indian city of Mohenjo-Daro.

Remains of cotton cloth have also been found in prehistoric ruins in Arizona and Peru.

About the time of the Middle Ages, between the 5th and 15th centuries, there were many myths and legends about cotton. It was in search of cotton that some of the great explorations of the 15th and 16th centuries were carried out.

Soldiers in the army of Alexander the Great returned from the East saying they had seen bushes with sheep's wool growing on them.





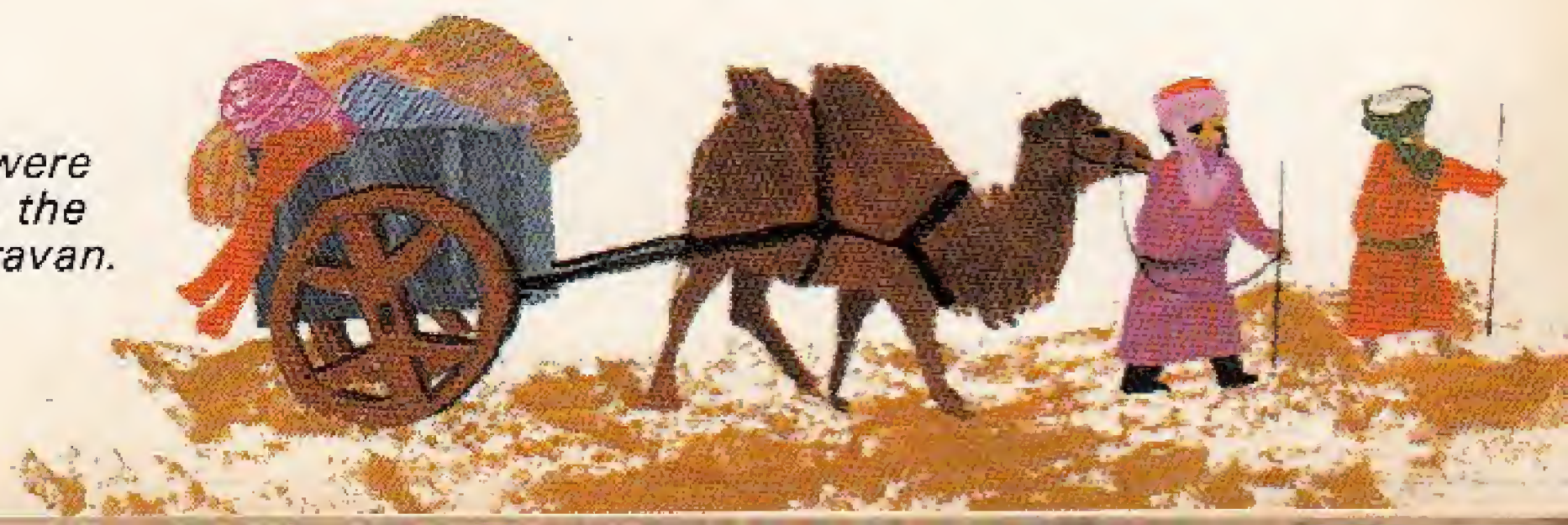
Chinese farmers were allowed to pay their taxes to the emperor in raw cotton.

In 1492 when Christopher Columbus landed in the West Indies, the natives brought cotton thread to his ship to barter with.

On conquering Mexico the Spaniards discovered that the Aztecs, the race of people living there, used cotton for almost everything—clothing, sunshades and flags.

Around 1600 Britain began to bring or *import* cotton materials from India. Other countries such as Holland and France did the same.

The cotton fibers were taken from Asia to the West by camel caravan.





12th century Arabian traders offer a Crusader cotton material to buy.

Cotton growing

The United States is the world's largest producer of cotton today. Other important cotton producing countries are the Soviet Union, China, India, Egypt and Brazil.

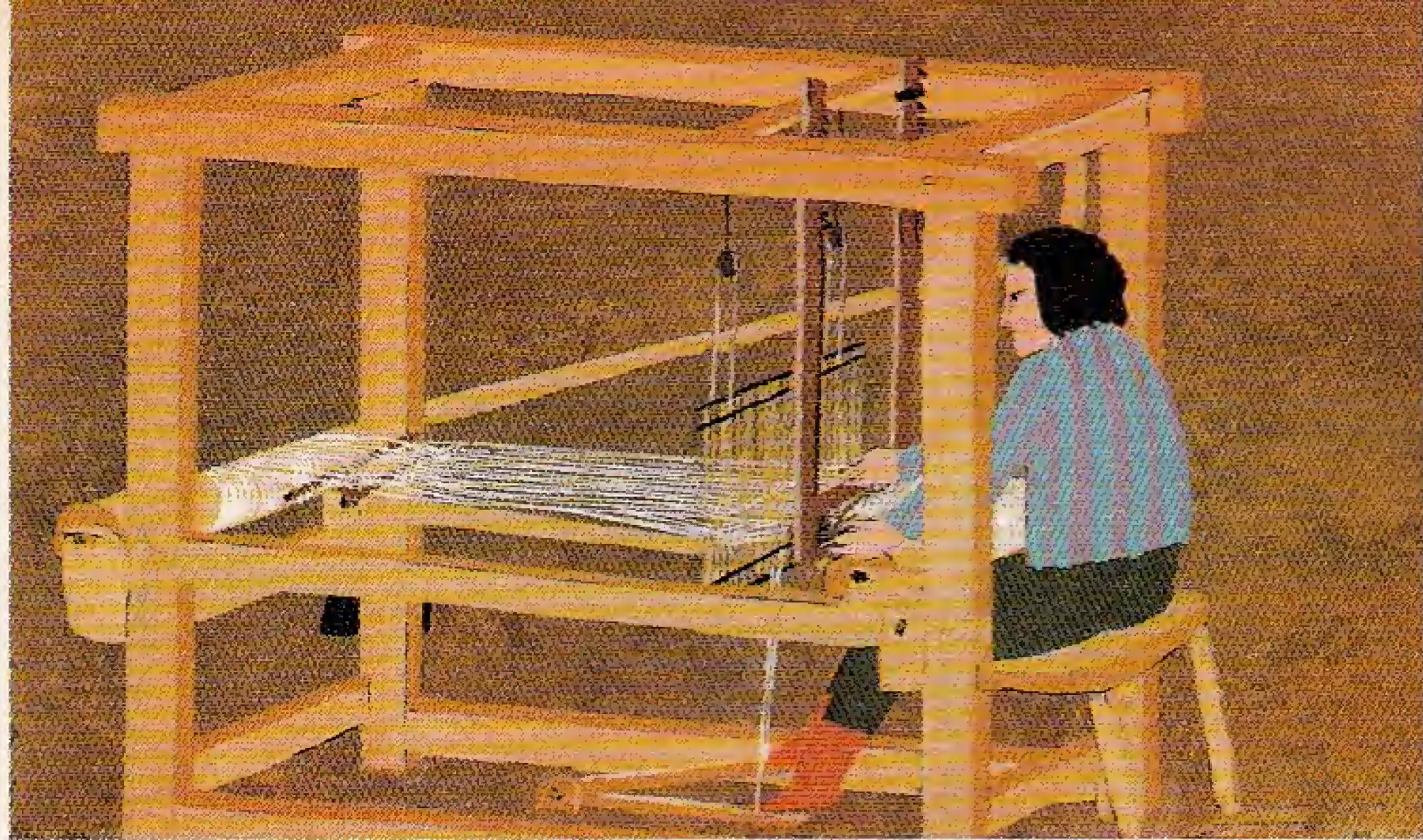
The cotton plant is freshly sown each spring. It needs sunshine and moist air in order to grow properly. In about three months it grows into a bush about 1.5 meters high.

In the Middle Ages Venice was an important trading center for cotton.





In the early 16th century cotton was mixed with linen to make a material called 'fustian' which was used for clothing.



A 16th century weaving loom

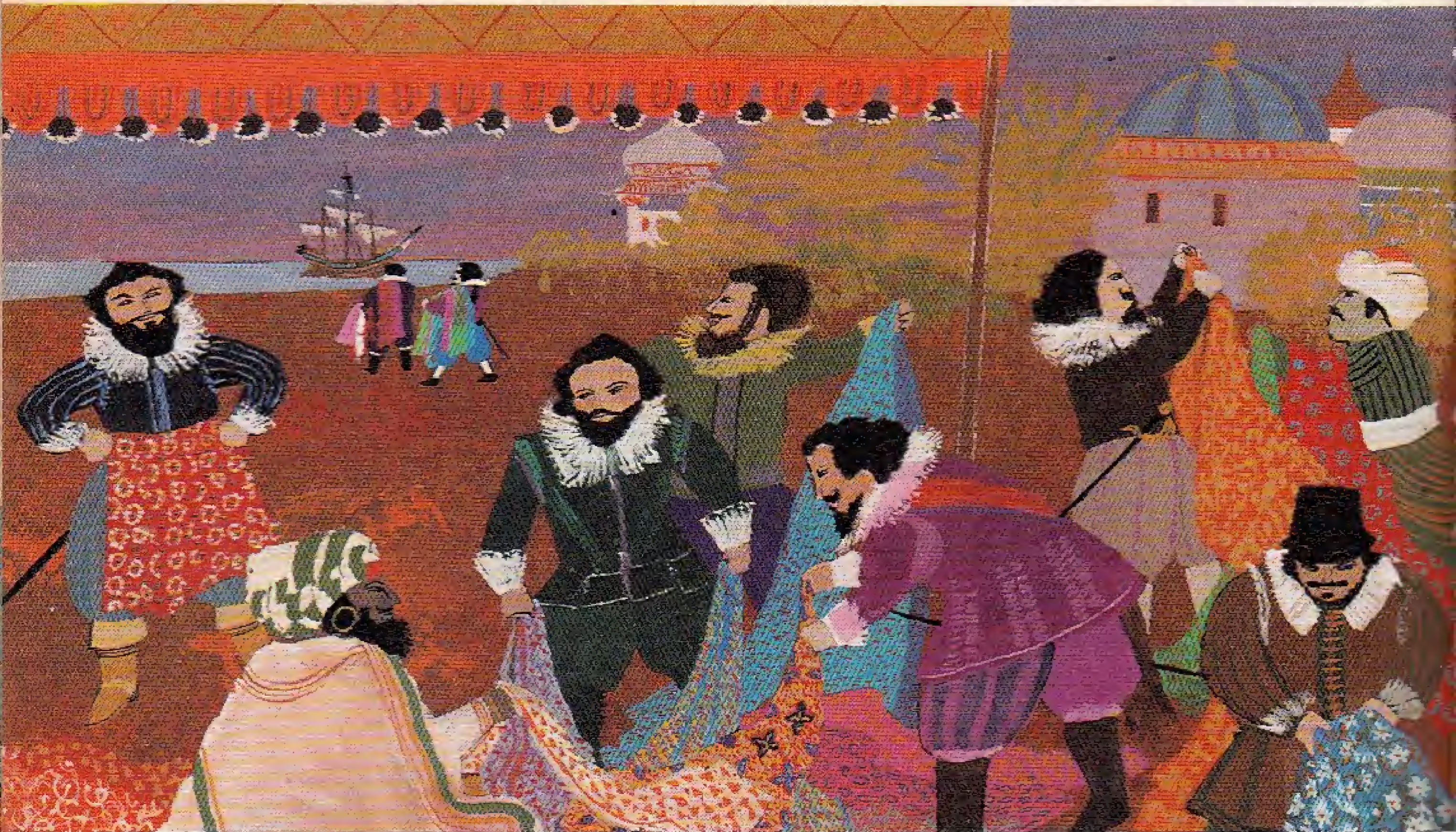
The flowers on the bush are white or pale yellow at first. Then they slowly turn pink, and after a few days they drop off.

After the flowers drop off a ball of cotton is left on the plant. In about two months this grows into a seed pod or *boll* about the size of a walnut.

Soon the seed pod bursts open. Inside it are little seeds covered in a mass of white or pale yellow fluff. This fluff is the *cotton fiber*.

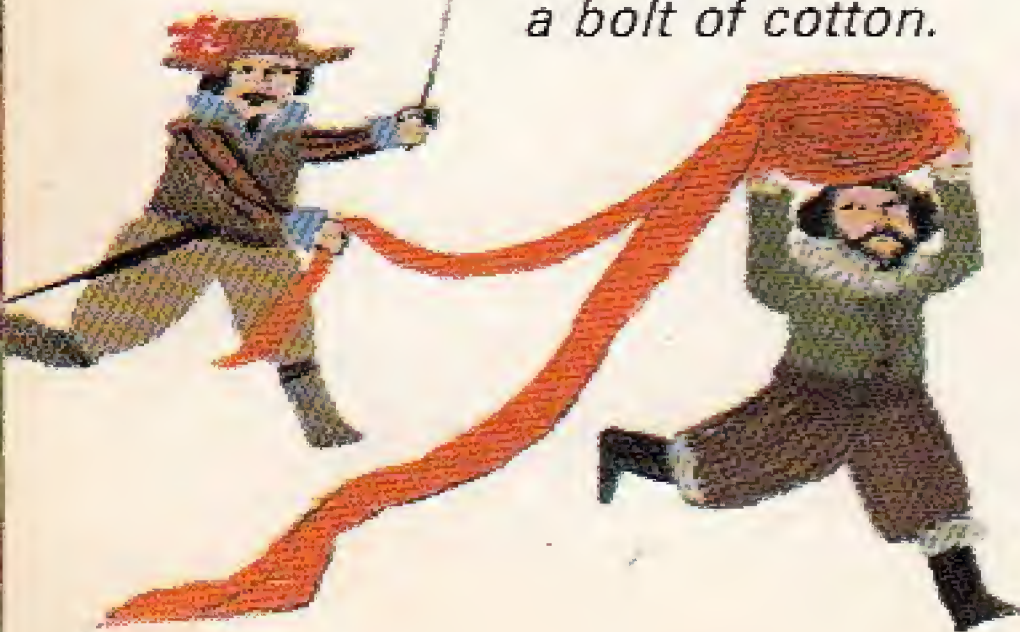
A peddler selling cotton gloves and candles with wicks made out of cotton.





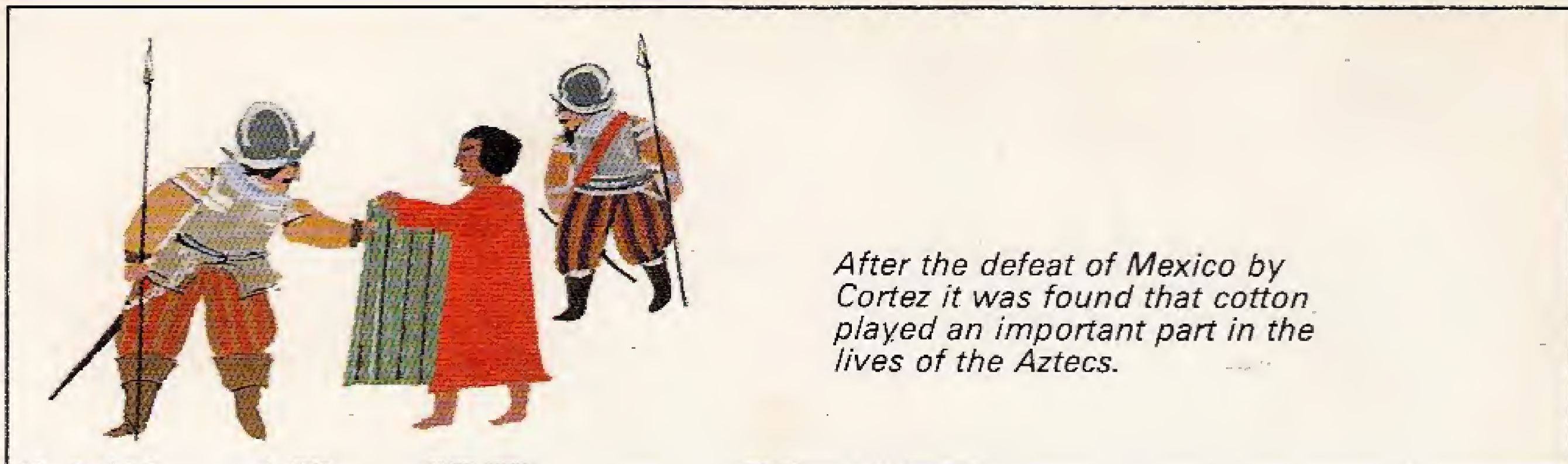
Vasco da Gama the 15th century explorer brought back gaily-printed cotton from India.

A thief tries to make off with a bolt of cotton.



In the early days the fluff was picked by hand. Nowadays it is done by machines. The seeds which are still in the fluff must be taken out. This is called *ginning*.

Afterwards the cottonseeds are collected. Some seeds are kept for planting the next year. The rest are taken to a cottonseed mill where the oil from the seeds is used to make cooking fat, salad oil, margarine and soap.



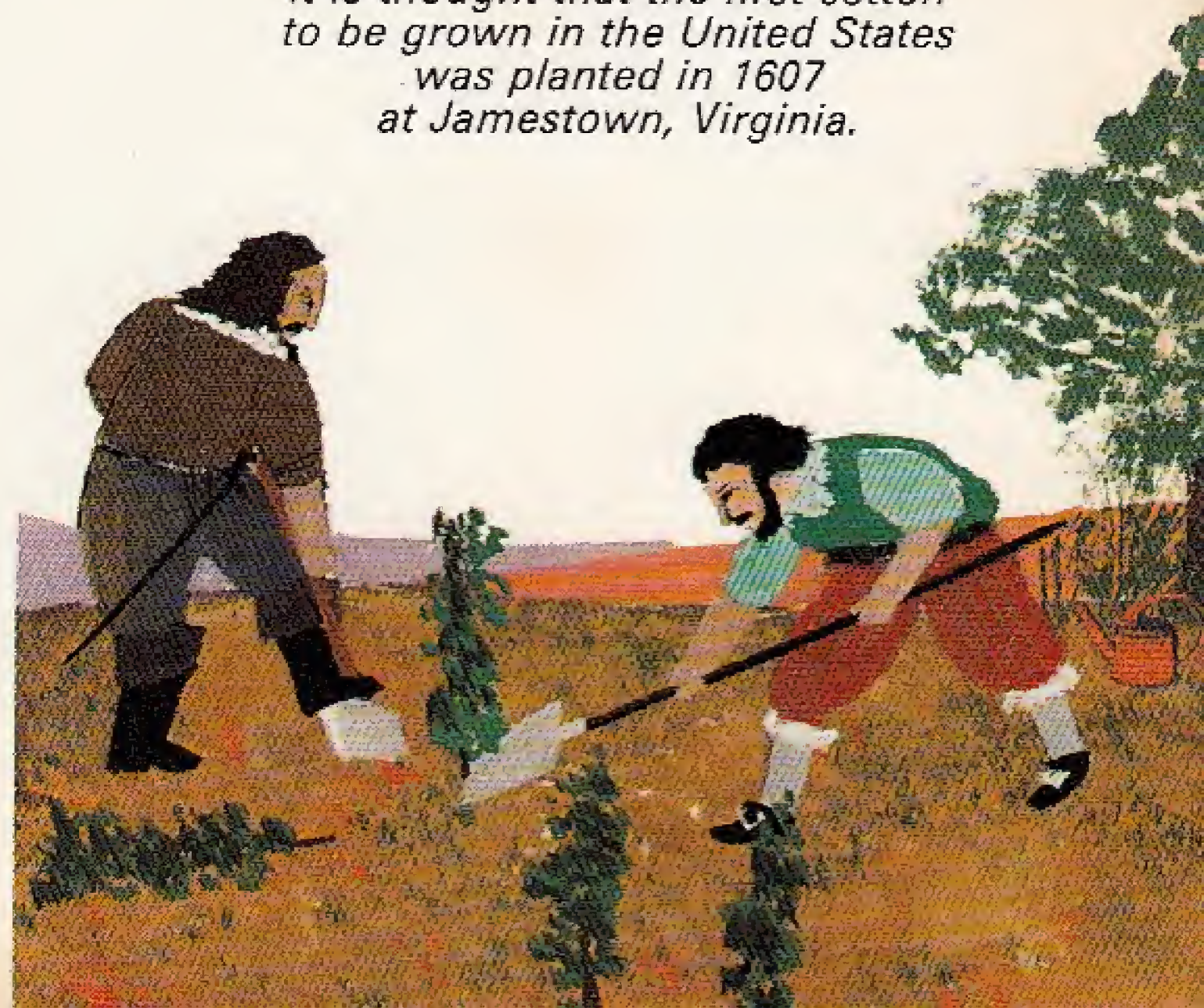
After the defeat of Mexico by Cortez it was found that cotton played an important part in the lives of the Aztecs.

The cotton fluff is put into bales and taken to the factory. It is now known as *raw cotton*. A lot of things must be done to the raw cotton before anything can be made from it.

When the bales reach the factory they are all mixed together and put through a machine which loosens the fibers and removes the dirt. Then the loosened fibers are pressed together into a thick sheet of cotton wool.

Next the sheet of cotton wool goes through a machine which combs and stretches the fibers. This process is called *carding*. The fibers come out of the machine in a thick untwisted rope.

It is thought that the first cotton to be grown in the United States was planted in 1607 at Jamestown, Virginia.





*A slave market.
A lot of people were needed to
work in the cotton fields, and
up until the middle of the 19th
century black slaves were used.*

Spinning

For sewing and weaving you need a good cotton thread. This thread is called *yarn*, and it is made by *spinning*.

In spinning the cotton fibers are stretched out further and further in order to thin them. Then they are twisted together to make thread. If a stronger thread is needed, they are twisted together again. This is called *twining*.

From ancient times up until the end of the 18th century spinning was done by hand in people's homes. Nowadays there are electrically-powered spinning machines which can spin strong fine threads at high speed.



*After the cotton had been
picked the slaves began
the task of ginning. They
had to remove all of the
cottonseeds by hand.*



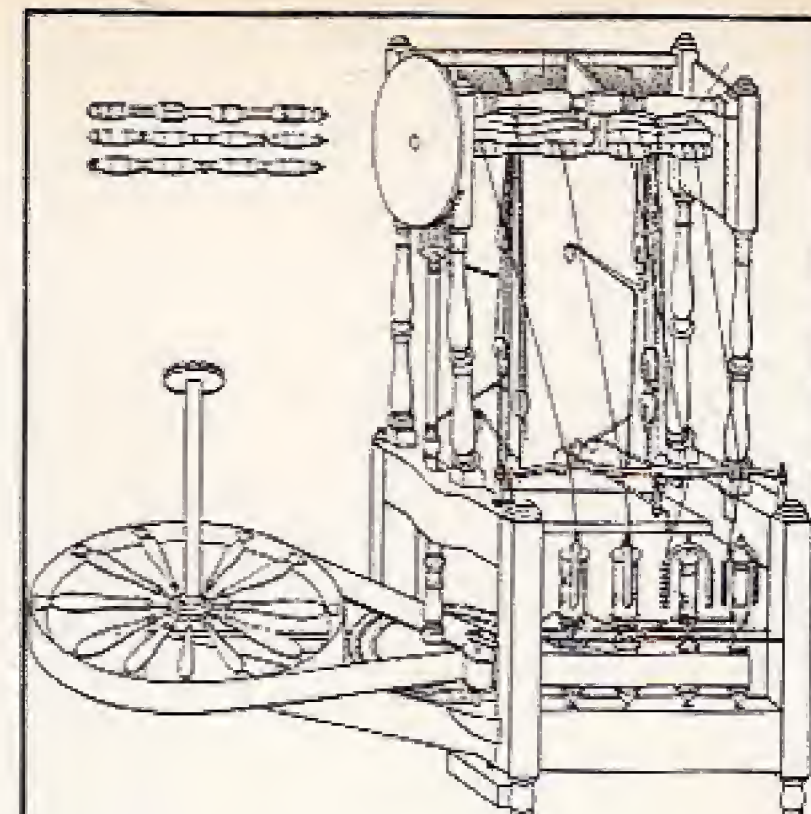
In the 17th century the British Parliament became worried that cotton would put the woolen trade out of business and so it was made a punishable offence in Britain to wear any printed cotton garment. In France cotton dresses were burned in public.

The cotton industry

At first cotton was just grown as a house plant. Nobody was really interested in growing crops of cotton.

Then in the 18th century the *Industrial Revolution* began in Britain. This was a time of great change in which many mills and factories were built. Many spinning and weaving machines were invented. This meant that more raw cotton was needed.

The southern states of the U.S.A. were best for cotton growing. Soon the *cotton belt* grew up in the South. It included the states of Mississippi, South Carolina and Alabama.



Richard Arkwright's loom

In 1767 English weavers destroyed some of the new machines because they were afraid of losing their jobs.





John Kay's invention, the 'flying shuttle', was not always popular.

James Hargreaves got the idea for his 'spinning jenny' after watching a spinning wheel that had been knocked over by mistake.



Work in the cotton fields was done by black slaves. British slave traders brought them across the Atlantic from Africa to America.

The slaves were packed into ships without much air, food or water. Over one-fifth of them died on the journey. Those who survived were sold in a slave market in New Orleans.

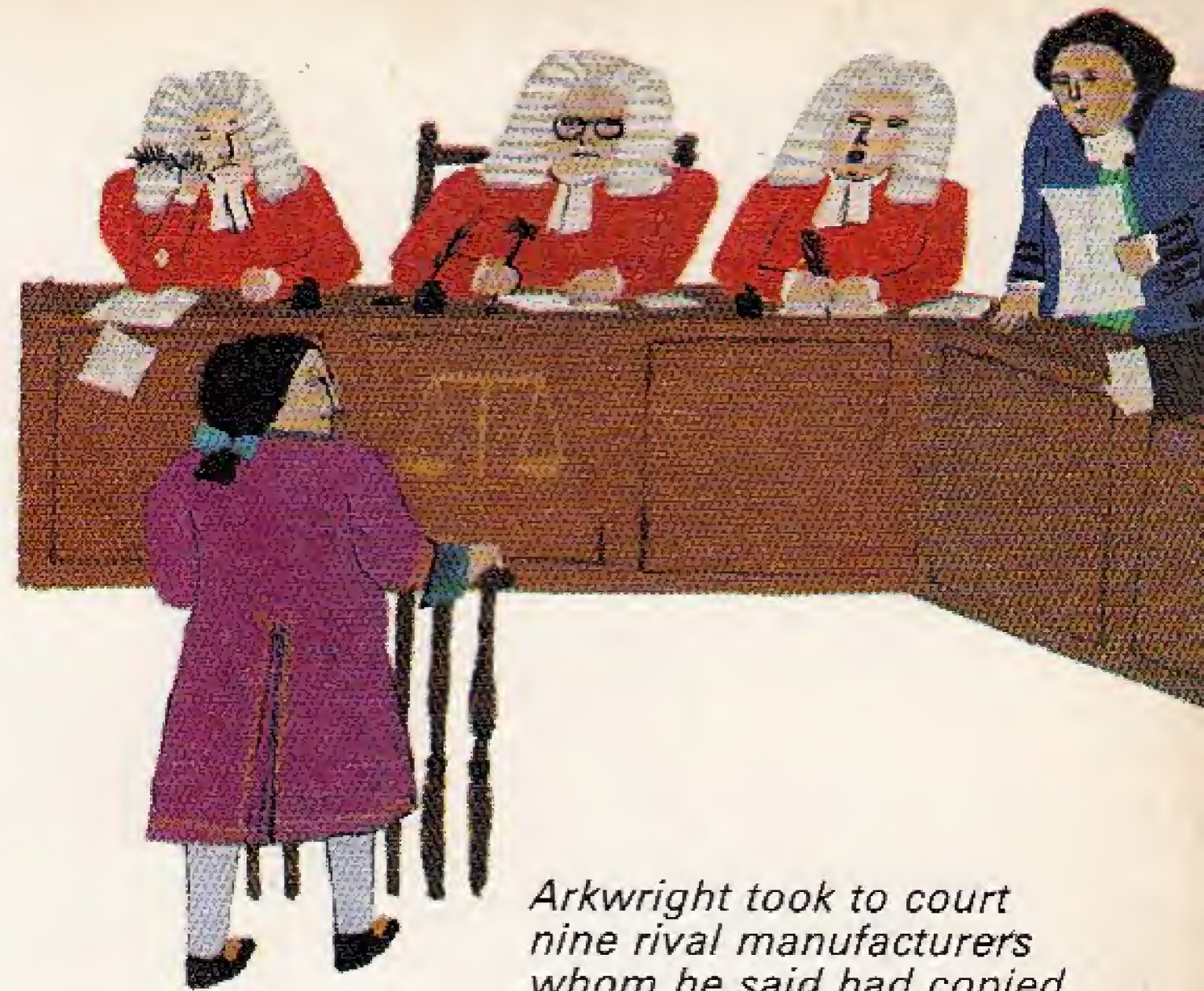
Even with slave labor, work such as ginning took a very long time. Then in 1794 Eli Whitney invented the *cotton gin*. This machine could gin over 22 kilograms of cotton a day, and soon became very popular.



An innkeeper called John Smalley worked in partnership with Richard Arkwright.

If you look closely at a piece of cotton fabric you will see that it is made up of some threads running down and some running across. This is called *weaving*, and is done on a *loom*.

People have woven cloth for about 10,000 years. Until the middle of the 18th century nearly all weaving was done on hand looms. Weaving nowadays is done by machines. This began in 1733 with the invention of the 'flying shuttle' by an Englishman called John Kay. Before this invention the shuttle had to be worked through the threads by hand.



Arkwright took to court nine rival manufacturers whom he said had copied his designs for machines.

Now that weaving was helped by machines, it became much quicker and more yarn was used. Soon weaving became so fast that the spinners could not keep up with the weavers. In 1767 James Hargreaves invented a machine called the *spinning jenny*. A few years later Richard Arkwright brought out a faster, more powerful machine. About 1789 Edmund Cartwright invented an *automatic loom*.

The new spinning machines were large and expensive and needed many people to work them. In order to house the machines and the workers, the first factories were built. Soon many more factories sprang up.

Working conditions in the factories were bad. Men and women had to work very hard and for long hours. Children also worked in the factories and many of them became weak and ill due to the long hours of work.

Many people made a great deal of money out of the cotton industry. They were known as the 'Cotton Lords'.





In 1798 a Belgian called Lievin Bauwens smuggled some cotton machines out of England and into France, hiding them in sugar crates.

The abolition of slavery

By the beginning of the 19th century many people thought that slavery should be stopped, or *abolished*. Slave trading was outlawed by England in 1821, and slavery was abolished in the northern states of America by 1804.

However, by the middle of the 19th century there were still about four million black slaves in America. Most of these slaves worked on huge cotton plantations in southern states such as Georgia, Alabama and Mississippi. This area was known as the *cotton kingdom*.



An early 19th century factory



In the 19th century weavers dressed up in disguise and burned down whole factories in order to destroy the new looms.



In 1810 Napoleon gave Lievin Bauwens the Legion of Honor.



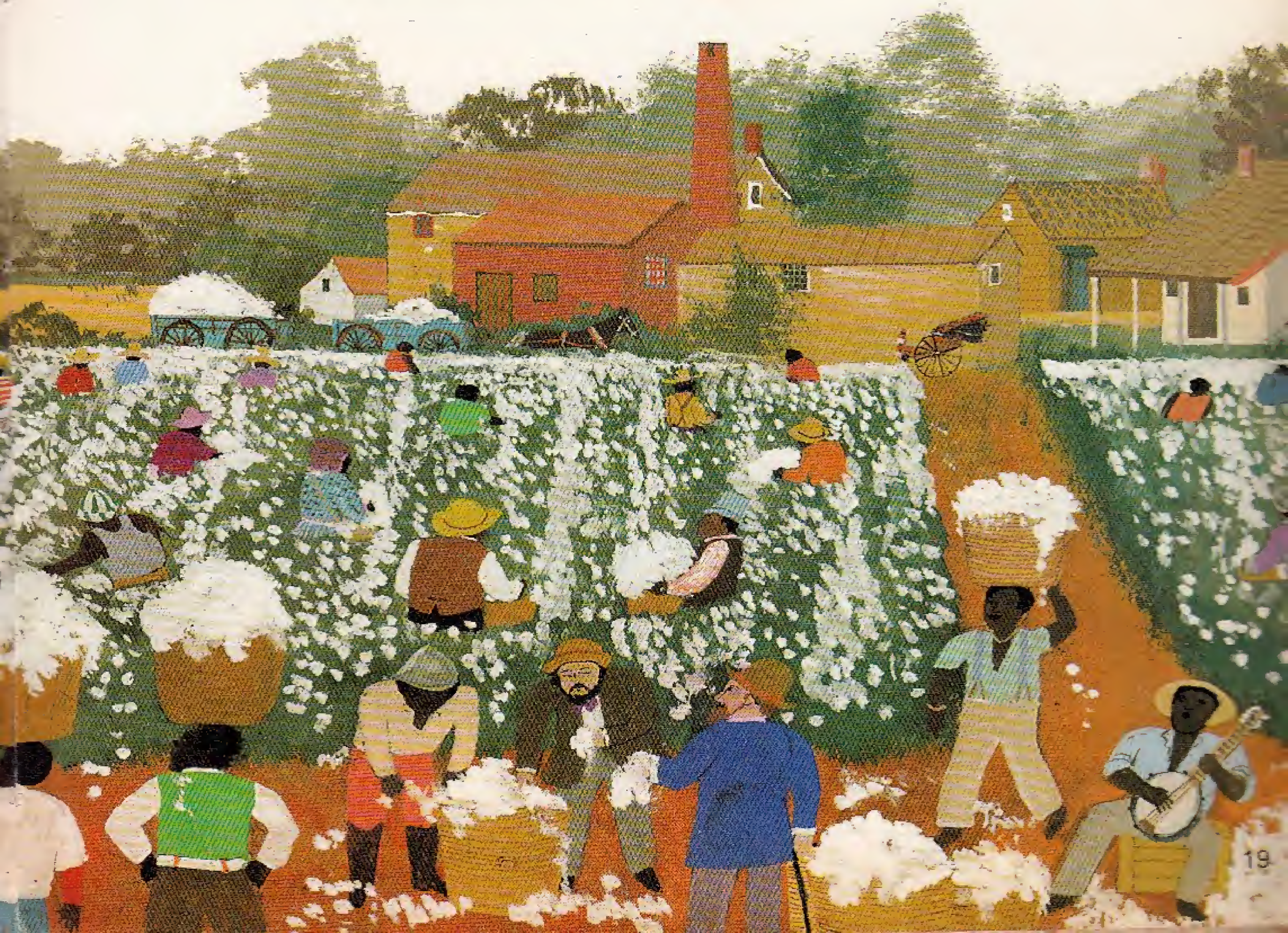
The American people of the South did not want slavery stopped. A lot of money was made from growing cotton and many slaves were needed to work in the fields. There was a great demand for cheap raw cotton, which was sent to factories in England and other countries.

Soon the *abolitionists* of the North, who wanted to end slavery, and the people of the South who did not, could live in peace no longer. In 1861 war broke out.

The *American Civil War* lasted until 1865. At the end of it slavery was finally abolished in the United States.



The life of a black slave in the cotton fields was very hard. The slaves lived in crude huts which didn't protect them properly from the weather. They could neither own any property nor learn to read or write. Sometimes families were separated, and children were taken away from their mothers and sold elsewhere. A slave's only purpose was to serve his master.





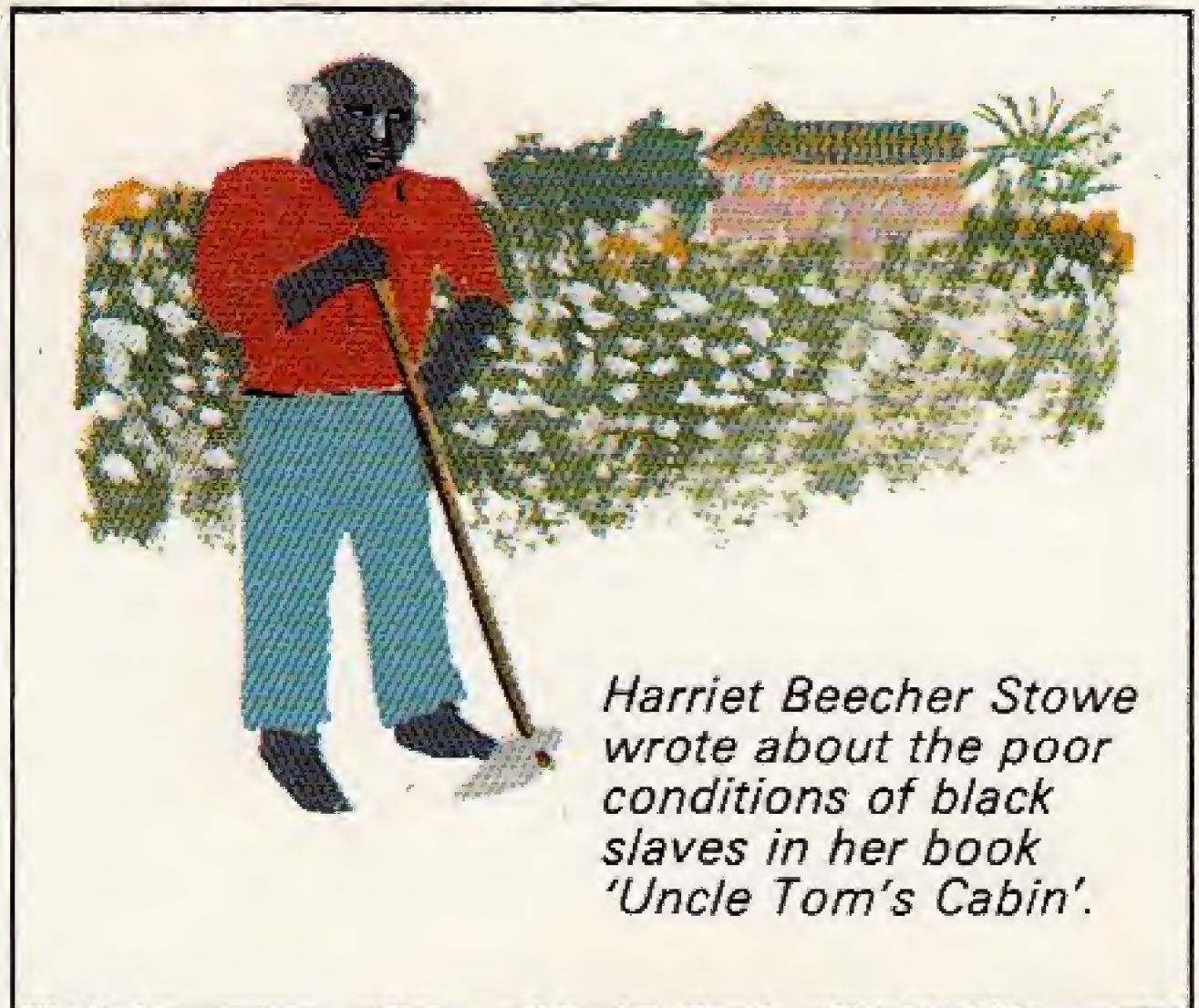
*The American Civil War
stopped cotton production
in America for a while.*

Uses of cotton

Cotton was the first plant to be grown for any reason other than for providing food. From very early times man has gathered the fibers, spun them into thread and woven them into cloth.

It seems natural that we should wear clothing made out of cotton to keep us warm, for the fluffy cotton fibers protect the cottonseeds from cold winds while they are ripening.

Clothes made out of cotton feel comfortable and fresh. Cotton can soak up a lot of moisture before it feels really wet. Because of this it is a very good material for towels, babies diapers and sports clothes.



*Harriet Beecher Stowe
wrote about the poor
conditions of black
slaves in her book
'Uncle Tom's Cabin'.*



The Cotton Exchange in New Orleans in the late 19th century.

Cotton is used for many other things besides clothing. In our homes it is used for bedspreads, dusters, drapes, sheets and sewing thread.

In industry such things as sacks, tents, fishing nets and typewriter ribbons are made from cotton. In hospitals cotton is used for bandages, absorbent cotton and nurses' uniforms.



At the beginning of this century the Mexican boll weevil damaged a lot of the cotton crop.

The cotton fibers

Cotton fibers are different from any other vegetable fibers because they are twisted. This makes them especially strong and good for spinning.

There are several different varieties of the cotton plant and each has a different kind of fiber. The fibers vary in length, strength and coarseness.

Upland cotton is the hardiest kind, and has short coarse fibers which are only suitable for making coarse cloth. *Sea Island* cotton had long silky fibers and is one of the finest kinds of cotton. It is grown in Egypt and some parts of the United States.



The boll weevil is cotton's worst insect pest and it is very hard to get rid of.

Cotton must be pressed before it is packed into bales. Before machines were invented pressing had to be done by foot.



Cotton is one of the world's most widely-grown crops. It is grown in more than sixty different countries.

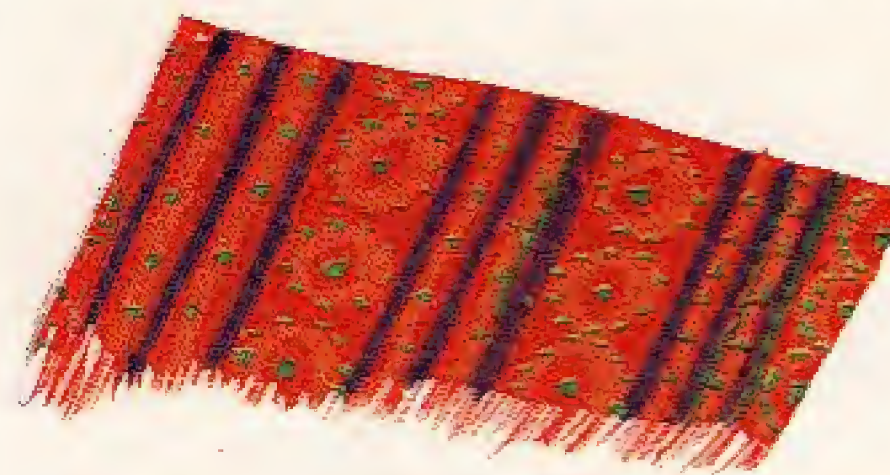
In spite of the invention of man-made fibers such as nylon and dacron, cotton has remained popular, and new varieties are being developed all the time.

Nowadays cotton is picked by machine.





Machines are used to test the strength of the cotton.



Cotton is easy to dye and can be printed with all sorts of designs.



A special method is used to make cotton shrink-resistant.

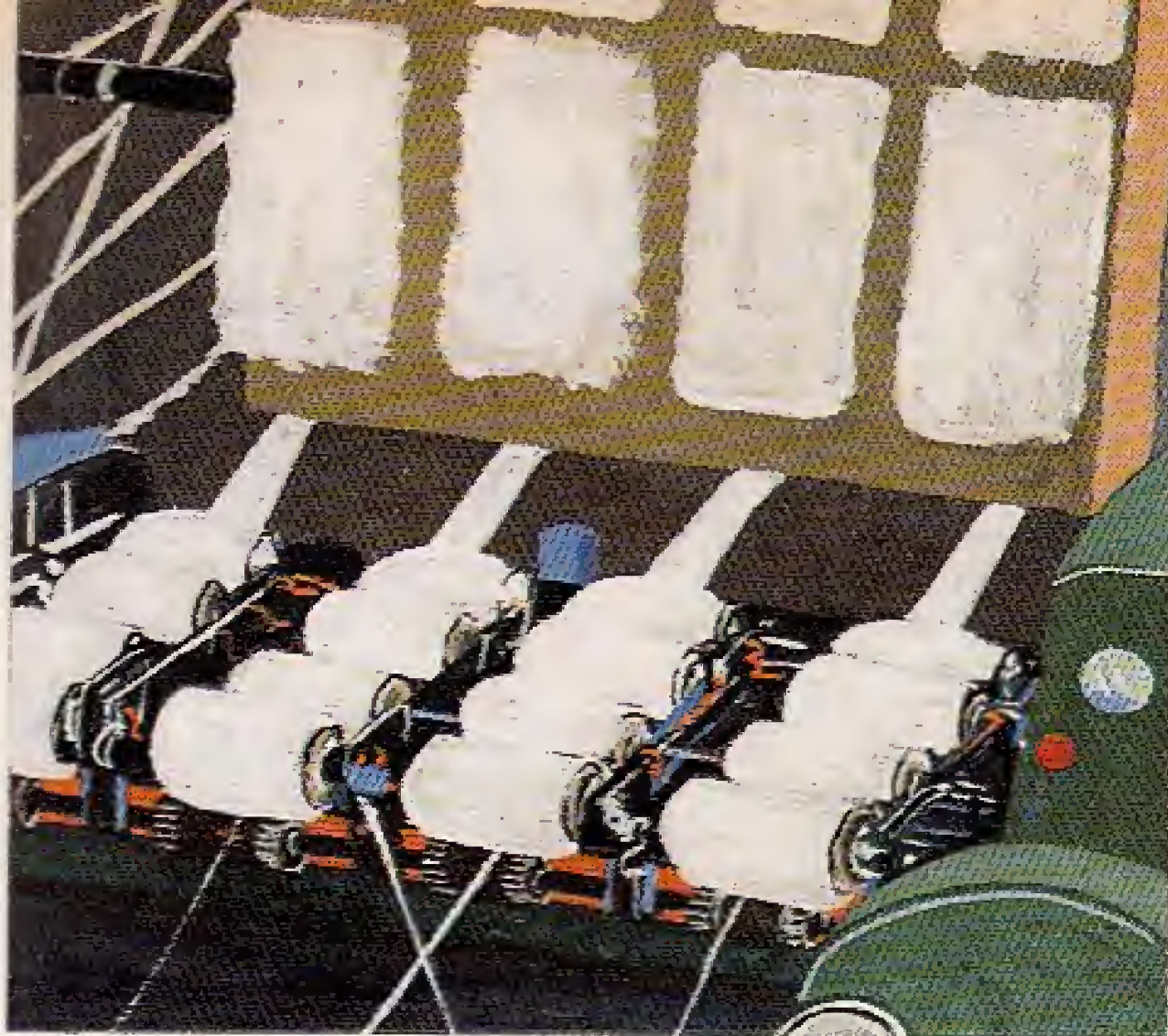


In warm countries cotton is worn a lot because it is light and absorbs moisture.

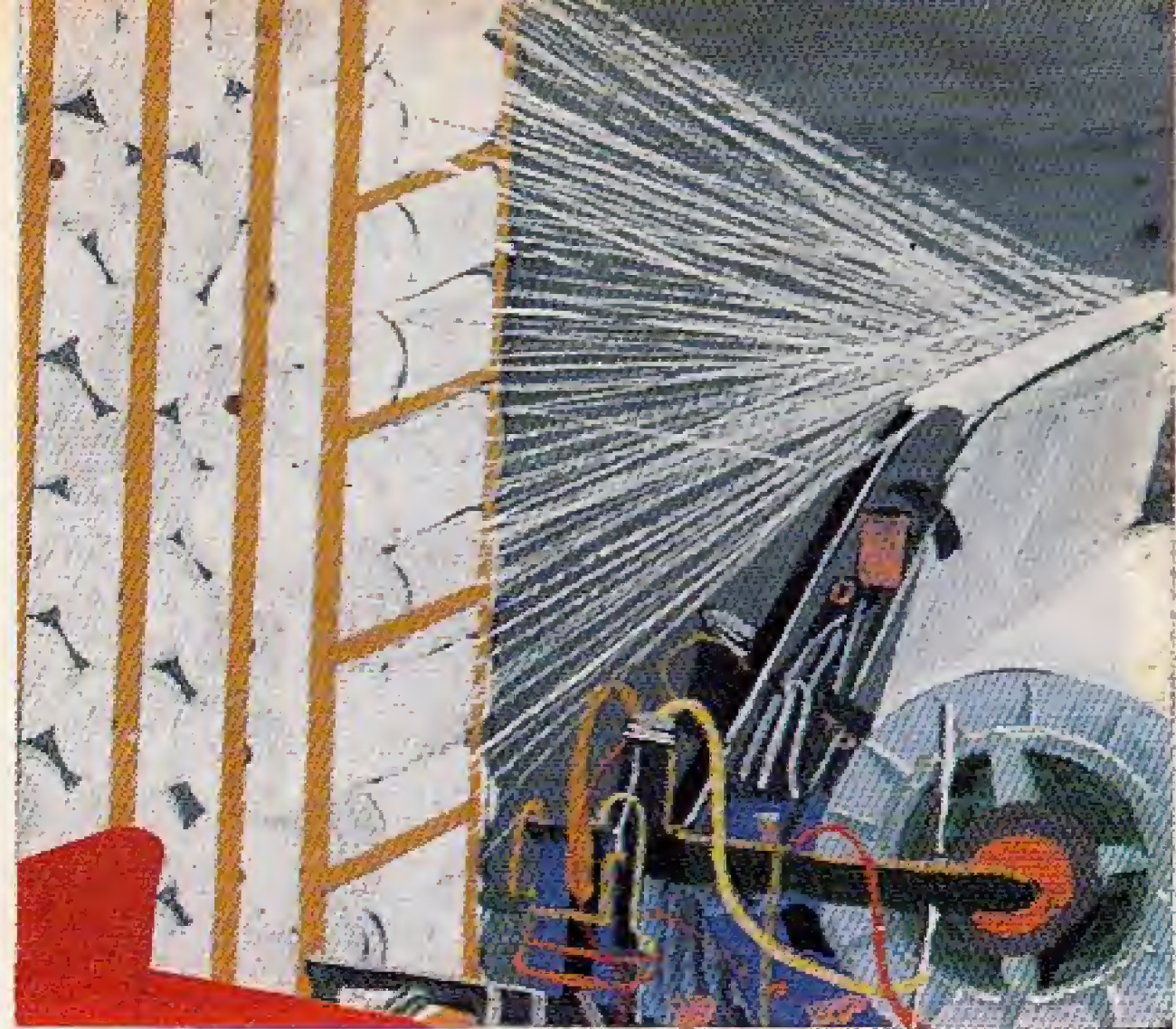
Although cotton fiber has been used for centuries, *cottonseed* was not used much until quite recently.

In ancient times the Chinese and the Hindus used *cottonseed oil* in their oil lamps, and as a medicine. But it was not until the end of the 18th century that machines were made to process the cottonseed.

After the cotton fibers have been removed the cottonseed goes through several machines, one of which presses the cottonseed until a lot of yellow oil comes out. After it has been refined this oil is used for cooking and for making paint. *Cottonseed cake*, which is what is left after the oil has been taken out, is used as cattle food.



The drawing frame, where the cotton threads are stretched out.



The warping machine, which is found in the weaving mill.

Some people think that cotton is out-of-date and will soon be replaced by man-made fibers. However this is not true. More than half of the cloth used in the world today is made from cotton and the cotton industry is growing fairly quickly. Because of this people are always trying to invent new machines which will produce cotton faster.



Cotton is India's largest industry.

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